Highlights
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# *Washington* SCIENCE TRENDS

Dear Sir:

MILITARY-CIVILIAN DIFFERENCES over future of U.S. Space program are now playing an important role as Eisenhower Administration strives to draft its next budget. The differences are arising over control of various space projects and allocation of funds between the new "civilian" space agency, the three armed services and the Pentagon's Advanced Research Projects Agency, (ARPA).

> The issue will be further complicated this week when delegates to the general assembly of the International Council of Scientific Unions here debate plans for international coordination of research in outer space.

THE SHARP SPLIT in thinking was pointed up last week by fresh military claims to space projects. An official Air Force Publication went so far as to print a diagram of the new "LTO" -- Lunar Theater of Operations. The same theme dominated the Air Force Association convention in Dallas, Texas during the week.

> Rear Adm. John E. Clark, Deputy Director of ARPA, says space developments such as satellites will make it theoretically possible to carry out nearly all the basic military operations such as reconnaissance, communications, damage assessment, weather prediction, bombardment -- and far more precisely.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION officially assumes its new title and status this week and is presently knee-deep in the struggle for future funds. Deputy Director Hugh L. Dryden admits he is "painfully aware" of the feeling that military space projects will dominate future spending.

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MISSILE NOTEBOOK: Engineers are rushing alterations on Atlas ICBM but won't be ready to try another full-range flight for at least a month. Difficulties in attempt earlier this month traced to overstressed gear box in the pump of the missile's Rocketdyne booster. Troop training begins early next spring with first operational capability by July, if all goes well.

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NAVY WEATHER MODIFICATION experiments are viewed with caution by meteorologists here despite assertions by the Pentagon that the preliminary tests "prove" the feasibility of creating and destroying clouds by a seeding process using ordinary carbon black.

> Government experts told Washington Science Trends that clouds form and dissipate rapidly in the skies over Florida and Georgia, where the experiments were performed. Without extensive testing and additional controls it may be impossible to determine whether or not the cloud changes were of Navy or natural origin.

THREE-STAGE PROGRAM to evaluate the carbon black tests has already started. Navy scientists are studying cloud physics and will later begin trying to achieve similar effects on fog, stratus clouds and thunderstorms. Should these phases prove satisfactory, work will begin on cloud-seeding hardware and techniques.

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LUNAR PROBE ATTEMPT slated for October 12, 13 or 14, may also run into weather difficulties at Cape Canaveral, Fla. Records show seven major tropical storms or hurricanes during the past 70 years at about that time of the month. Mid-October storms have a habit of moving inland over Florida and are often preceded or followed by heavy rains which could make a launching at the assigned time difficult or impossible.

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SYNTHETIC FUEL PLANTS of the future must be based on coal according to U. S. Bureau of Mines engineers. They base their prediction on the theory that the days of cheap natural gas are over in the United States, and that gasoline, diesel oil and other petroleum products will have to be synthesized from coal to meet future demand. They indicate the research phase of the synthetic fuel industry may be stepped-up if the automobile industry turns to gas turbine or free-piston engines which can use paraffin oil, readily obtainable through present-day synthetic processes.

> Tunneling through quicksand with the aid of chemicals may prove a comparatively safe and effective procedure in certain cases, Mines Bureau studies show. Engineers used sodium silicate and calcium chloride to form a gel which cemented sand particles together.

ATOMIC ENERGY COMMISSION looking for industry proposals on a prototype or demonstration model gas cooled, graphite moderated nuclear power plant. Studies submitted to Congress earlier this year indicate such reactors have "considerable promise" for production of competitive nuclear power. AEC will sponsor an unclassified conference on gas-cooled reactor program at Oak Ridge Oct. 12 and 22.

TRANSISTOR TARIFFS? The electronic industry plans to go before the Office of Civilian and Defense Mobilization with the plea that Japanese transistors are a "threat to national defense." Members of the industry association have authorized a request for a full-scale government investigation. Reports reaching Washington indicate that the Japanese are capable of producing some 80 million transistors this year, while U.S. firms plan to turn out from 45 to 50 million. Prices of the Japanese products are low and quality is said to be high. Most transistors reaching this country are in portable radios but manufacturers say competition from abroad could hamper a vital domestic defense industry.

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ELECTRONIC NOTEBOOK: National Bureau of Standards says superior electronic devices may result from new studies of barium titanate, an important component of miniature capacitors, transducers, ultrasonic transmitters and possibly computers....Navy cites Lynwood Cosby of its Research Laboratory staff for a "major breakthrough" in electronic countermeasures for ships and aircraft. Details are still classified....

> Airborne television developed by Philco Corp. Philadelphia, was used successfully as an ice reconnaissance tool in recent trip of the ice-breaker U.S.S. Glacier to Thule Air Force Base, Greenland. Helicopter transmitted sharp clear pictures up to a radius of 35 miles and future plans call for a remote controlled chopper to eliminate any possible loss of life due to Arctic storms.

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FIRST FOOD-RADIATION REPORT will be delivered by U.S. Food and Drug Administration to agricultural chemists meeting here in mid-October. The survey covers radiation levels of food packaged before the dawn of the Atomic Age compared with the 1956 pack of a dozen staple commodities. Some of the pre-1945 samples were unearthed from stocks left behind by polar explorers while housewives throughout the nation contributed samples from their home pantries....The Public Health Service has no plans for legislation to require registration or licensing of X-Ray or other radiation-producing devices but may encourage states to foster adjustment checks of equipment. Officials at PHS say the danger of excess radiation from such devices appears to be greatly over-rated.

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THE LIGHTER SIDE: Successful test of the Boeing IM-99 long range interceptor at Cape Canaveral last week may squelch a long-standing Pentagon quip -- that piloting a Bomarc target plane might be the safest job in the Air Force.

## PUBLICATION CHECKLIST

( ) Scientific and Economic aspects of earthquakes surveyed in "Earthquake Investigation in the United States," 40-pp. 20¢ (Write Business Service Desk, Department of Commerce, Washington 25, D.C.)

( ) New government standards for "costing" research and development performed for Federal Government by educational institutions outlined in circular No. A-21, 10 pp. free (Write Bureau of the Budget, Washington 25, D.C.)

( ) Translations of Russian technical documents may be aided by newly-published "Russian-English Glossary of Guided Missile, Rocket and Satellite Terms," 352 pp. $2.50 (Write Card Division, Library of Congress, Washington 25, D.C.)

( ) Technical management may find suggestions on Personnel practices in a "Check List for Managers of Engineering and Scientific Organizations", 15¢. (Write Superintendant of Documents, Government Printing Office, Washington 25, D.C.)

( ) Three Catalogs of Technical Reports for the field of Titanium list U.S.-sponsored research into the metal, its alloys, carbides and compounds and barium titanate. Publications are CTR 349-351, 10¢ each. (Write OTS, Dept. of Commerce, Washington 25, D.C.)

( ) Technical papers presented by American nuclear scientists at the Geneva Conference earlier this month are listed in a 16 page catalog, 25¢ and are available individually for 50¢ each. (Write OTS, Department of Commerce, Washington 25, D.C.)

( ) An extensive study-report on "Nuclear Energy and World Fuel Prices" provides statistics, conclusions and speculations on the relationship between pricing for conventional fuels and the emergence of commercial nuclear power. 74 pp. $1.25 (Write National Planning Association, 1606 New Hampshire Ave., Washington 6, D.C.)

( ) The Physical Research Program of the Atomic Energy Commission is discussed and debated at length in transcript of Congressional hearings. Free. (Write Joint Committee on Atomic Energy, F-88, The Capitol, Washington 25, D.C.)

( ) Air Force Moon Plans, Pressure Suit Research and Space Medicine are discussed in lay terms in "The Airman," USAF Periodical 30-15, Single copies, 35¢. (Write Superintendant of Documents, Government Printing Office, Washington 25, D. C.)

Cordially,
Arthur Kranish, Editor

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